

AMENDMENTS

In the claims:

1-21. (Cancelled)

The following new claims have been added:

22. (New) Method for inputting an information signal into a power cable which is connected to a voltage supply including a voltage source and which comprises at least one or more conductors, a dielectric provided around the conductors and a conductive earth sheath arranged wholly or partially around the dielectric, the method comprising of inputting an information signal at a first position in the power cable to produce a corresponding information signal propagating to a second position of the power cable, characterized in that the step of inputting an information signal in the power cable comprises inputting a pulse-like information signal at the first position in the earth sheath in order to produce a corresponding pulse-like information signal over the dielectric between the one or more conductors and the earth sheath of the power cable, which corresponding information signal is propagated in the dielectric of the power cable to a second position.

23. (New) Method according to claim 22, wherein the step of inputting an information signal in the earth sheath further comprises of injecting a current pulse into the earth sheath, producing a voltage pulse over the dielectric of the power cable.

24. (New) Method according to claim 23, wherein injecting the current pulse in the earth sheath further comprises closing a current path via other components in the voltage supply to produce the voltage pulse over the dielectric.

25. (New) Method according to any of claims 22-24, wherein inputting of a pulse-like information signal into the power cable comprises of inputting the information signal

directly into the earth sheath, into an earth wire between the earth sheath and the earth and/or into a line between the voltage source and the earth.

26. (New) Method according to claim 25, further comprising the steps of providing one or more coils on a position close to the earth sheath, earth wire and/or the line between the voltage source and the earth so as to inject a current pulse causing a voltage pulse over the dielectric without contact with said one or more conductors of the power cable.

27. (New) Method according to claim 22, further comprising of transmitting data between said positions via the power cable.

28. (New) Method according to claim 27, wherein said data comprise control data or data about the power cable itself.

29. (New) Method according to claim 22, comprising of synchronizing the time between the first and second position.

30. (New) Method as claimed in claim 29, further comprising of periodically transmitting a synchronization information signal at a predetermined time interval and periodically synchronizing time registering means arranged close to the first and second position using the periodically transmitted synchronization signal.

31. (New) Method as claimed in claim 29 or 30, further comprising of diagnosing the dielectric on the basis of transmitting the information signal between said positions.

32. (New) Method according to claim 22, wherein the power cable comprises one or more branches.

33. (New) Method according to claim 22, further comprising of inputting the information signal when one or more of the conductors are in a voltage-carrying mode.

34. (New) Method according to claim 22, wherein the voltage source is a station of an external electricity grid.

35. (New) System for inputting an electrical information signal into a power cable which is connected to a voltage supply including a voltage source and which comprises at least one or more conductors, a dielectric provided around the conductors and a conductive earth sheath arranged wholly or partially around the dielectric, comprising:

- inputting means for inputting an information signal at a first position in the power cable, herein producing a corresponding information signal which is propagated to a second position in the dielectric of the power cable, characterized in that the inputting means are arranged so as to input a pulse-like information signal at the first position in the earth sheath in order to produce a corresponding pulse-like information signal over the dielectric between the one or more conductors and the earth sheath of the power cable, which corresponding information signal is propagated in the dielectric of the power cable to the second position.

36. (New) System according to claim 35, wherein the inputting means are arranged so as to inject a current pulse into the earth sheath, producing a voltage pulse over the dielectric of the power cable.

37. (New) System according to claim 36, wherein the voltage supply includes an earth wire between the earth sheath and the earth and/or a line between the voltage source and the earth and wherein the inputting means are embodied so as to inject the current pulse directly into the earth sheath, into said earth wire and/or into said line.

38. (New) System according to any of claims 35-37, wherein the inputting means comprise one or more coils positioned close to the earth sheath, earth wire and/or the line between the voltage source and the earth so as to input a current pulse causing a voltage pulse over the dielectric without contact with said one or more conductors of the power cable.

39. (New) System according to claim 38, further comprising impedance-increasing means whereby the impedance in one or more earth wires can be increased locally such that the information signal to be inputted causes a corresponding pulse-like information signal particularly in the dielectric of the power cable.
40. (New) System as claimed in claim 39, wherein the impedance-increasing means comprise one or more ferrite elements arranged in the relevant earth wire(s).
41. (New) System as claimed in any of the claims 35-37, also comprising detecting means for detecting the voltage pulses propagated along the power cable.
42. (New) System as claimed in any of the claims 35-37, further comprising first respectively second time registering means and time synchronizing means positioned at the first and second position for the purpose of synchronizing the time registering means relative to each other using an information signal inputted into the earth sheath.
43. (New) System as claimed in claim 42, wherein the inputting means are adapted to input the information signal periodically at a predetermined time interval and the synchronizing means are adapted to periodically synchronize the first and second time registering means.
44. (New) System as claimed in claim 43, wherein the inputting means, detecting means and the time registering means are adapted to determine the positions of irregularities causing partial discharges in the dielectric of the power cable.
45. (New) System according to claim 35, wherein the voltage source is a station of an external electricity grid.
46. (New) System or method according to claim 35, wherein the voltage on the voltage-carrying cables lies in the range of 200 V to 400 kV.